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ABSTRACT

The relationships among training activities, teacher perceptions of recommended practices, and teacher behavior change were investigated. Nineteen junior high school teachers of low-achieving students were observed prior to receiving training in workshops on use of academic time. The teachers also responded to questionnaires designed to determine their perceptions of the workshops' practicality and the ease or difficulty of implementing new techniques. Participants were divided into three groups and received three different variations of Stalling's Effective Use of Time Training. Group 1 received Presentation, Demonstration, Practice, and Feedback in the workshops only; group 2 received these same components plus two classroom observations by a peer; group 3 received the four components plus two coaching sessions from the trainer. Analysis of training effects indicated that peer observation training activities seemed more successful than workshops-only or coaching training. A discussion is presented on the relationship between positive or negative attitudes toward implementing new teaching techniques in the classroom and actual behavior change on the part of teachers. Implications for further research and practice are considered. (JD)

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A Study of Inservice Training, Teacher Characteristics, and Teacher Change

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A Study of Inservice Training, Teacher Characteristics, and Teacher Change

In the past ten years great strides have been made in identifying teacher behaviors that positively influence student learning of basic skills. Teacher management practices, instructional techniques, and expectancies have been found to relate to (and, in some cases, cause) significant gains in pupil learning (Brophy, 1979). Yet, teachers, administrators, and parents are complaining about the inadequate acquisition of basic skills by our nation's children. How can these relatively recent findings be used to improve student learning?

Most practicing teachers get exposure to new ideas through some form of inservice training: workshops, college courses, observations, or lectures. Yet, often, little change or improvement is noted as a result of these training efforts. It seems that teachers are unlikely to use new or unfamiliar techniques, however helpful they may be, unless they receive effective instruction in their use. What is needed is research on inservice teacher training: What factors are important in bringing about teacher implementation of research-based teaching practices?

Given that teacher behavior change is critical to the improvement of teaching, there is surprisingly little systematic inquiry into the process of inservice teacher training and its effects on everyday teaching practices. Joyce and Showers (1981) reveiwed the training literature and provided the following hypotheses: (1) four components of training--presentation, demonstration, practice, and feedback--are sufficient for many teachers to show transfer of recommmended practices in the classroom; (2) coaching,

the fifth component, may be necessary for many other teachers; (3) types of teaching practices being trained--whether they are familiar or new to the teachers-- may also influence effectiveness of training.

Recently, researchers of teaching have conducted experiments comparing student academic gain in classes where (1) teachers received training on research-based teaching practices, and (2) teachers received no training (Gage and Giaconia, 1981). In all cases, teachers were observed to check on fidelity of implementation of the training. It was found that some teachers adopted only a few of the practices, others adopted most of them, and some hardly changed at all. Doyle and Ponder (1977) have suggested that teachers' perceptions of the "practicality" of recommended teaching practices may influence teachers' use of them. Two aspects of the practicality notion are teachers' philosophical acceptance of the recommendations and the perceived cost or difficulty of making the change (Mohlman, Coladarci, and Gage, 1982).

In 1981-82, a study (Sparks, 1983) was conducted to investigate the relationships between training activities, teacher perceptions of recommended practices, and teacher behavior change. This paper will report the methods, results, and implications of the study.

Method

The sample, procedures, and measures are described in this section.

Sample

Nineteen jr. high school teachers of English, social studies, and math for low-achieving students participated in the study. Two to five teachers were recruited from each of seven schools in the San Francisco Bay Area. The schools were roughly equivalent in terms of S.E.S. and

organizational climate as indicated by teacher questionnaires. The teachers were well experienced, with total years of teaching ranging from seven to 25 years.

Procedure

In early October, two trained observers observed all teachers during the same class period on three consecutive days using Stallings' Secondary Observation Instrument. These data were converted into teacher behavior profiles that were given to the teachers at Workshop 1 in late October. At that time, the teachers also completed a short questionnaire to assess (a) selected teacher characteristics (e.g., perception of the practicality of the practices discussed in the workshops), (b) school-level organizational factors, and (c) student characteristics. Next, teachers from geographically close schools were combined into three groups of six or seven. The three groups of teachers then received three different variations of Stallings' Effective Use of Time Training (Stallings, Needels, and Stayrook, 1979) during late October and November (further details are provided in the next section). In January and February, all teachers were again observed on three consecutive days and filled out teacher questionnaires. In March, interviews were conducted and a final meeting was held to inform teachers of their observation results.

Training Activities

The primary purpose of the Effective Use of Time Training is to increase student time on task. The 2-1/2 hour workshops were conducted after school, one week apart for four consecutive weeks.

Three combinations of training components were used. All three groups participated in four identical Effective Use of Time workshops. At the first

workshop, all teachers received use-of-time profiles based on three days of observation in one of their classes. The other three workshops included presentation; demonstration, practice; and discussion of classroom management, organization, grouping, and instructional techniques. Thus, Group I received Presentation, Demonstration, Practice and Feedback in the workshops only; Group II received these four components in the workshops plus two classroom observations by a peer; and Group III received the four components plus two in-classroom coaching sessions provided by the trainer.

	Group I (N=6)	Group II (N=7)	Group III (N=6)
EFFECTIVE USE OF TIME WORKSHOPS	Presentation (Demonstration)* Practice Feedback	Presentation (Demonstration)* Practice Feedback PEER OBSERVATION	Presentation (Demonstration)* Practice Feedback TRAINER COACHING

*Although some techniques were role-played or demonstrated by the teachers for each other, formal modeling was not a regular part of the training.

Measures

The measures of teacher attitudes and implementation are described next.

Measures of Teacher Perceptions and Attitudes. Teachers were asked to rate each of 15 training recommendations according to their perceptions of the ease and importance of using the recommended practices. A "1" indicated less ease or importance; a "4" indicated greater ease or importance.

The Ease and Importance constructs were based on Doyle and Ponder's (1977) work on teachers' perceptions of the "practicality" of a teaching strategy. As mentioned earlier, it has been hypothesized that a teacher perceiving a practice as (a) difficult to implement (high "cost") or (b) lacking "congruence" with his or her preferred style, is unlikely to use it.

The "ease" subscale was designed to measure the teacher's perception of the "cost" involved in implementing the recommended teaching practice. Rating the "importance" of the recommendation seemed to be a reasonable approach to measuring the "congruence" or acceptance a teacher feels toward a given teaching practice.

Teachers were also interviewed to find out about the helpfulness of the training activities, what was hard or easy to change, and their reactions to the Effective-Use-of-Time training. These interviews were conducted and audio-taped by graduate students. Open-ended questions on the final questionnaire and observer logs were other sources of qualitative data.

Implementation Measures. The Stallings Secondary Observation Instrument (SOI) was used to measure teaching behavior. The validity of this instrument has been established in previous studies (e.g., Stallings, et al., 1979). High interrater reliability (85% agreement or better) was established for observers in the present study.

The system includes two kinds of instruments, the Snapshot and the Five Minute Interaction (FMI). The main outcome variable reported here, the Percent of Academic Interactions, was yielded by the FMI.

For five minutes, at five equally-spaced intervals throughout the period, the observer coded every interaction between the teacher and students. Over the three periods of observation, approximately 900 interactions were recorded. Each interaction frame contained the following information: Who said it, To Whom it was said, What it was (Question, Lecture, Correction, etc.), and How or what it was about (Academics, Organizing, Misbehavior, or Socializing). Thus, to compute the percent of all interactions that were about the academic subject matter, the number of academic inter-

actions was divided by the total number of interactions. Giving directions for an activity was not considered an academic interaction.

Since one of the main goals of Stallings' Effective-Use-of-Time training was to increase the amount of academic interaction between teachers and students, Academic Interactions was selected as one of the major implementation variables. The results for this variable will be reported in this paper. Analyses with other observation variables yielded results similar to those reported here.

Results and Discussion

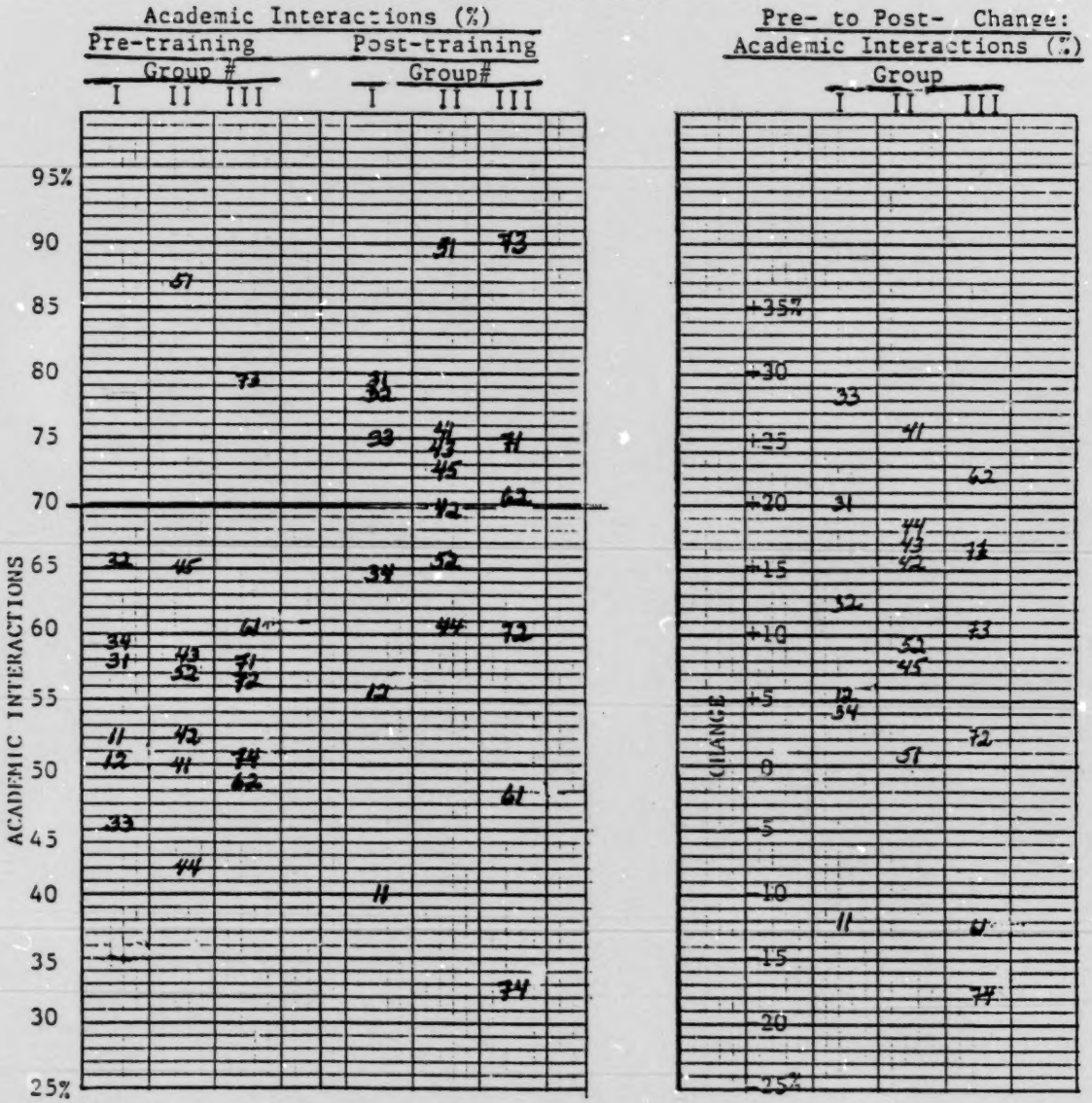
Two main questions were addressed in this research: (1) Which of the three training groups improved the most, the workshops-only group (Group I), the peer observation group (Group II), or the coaching group (Group III)? (2) How do teacher attitudes and perceptions relate to teacher improvement? The question of training effects will be addressed first.

Effects of Training Activities

Figure 1 presents a graphic display and descriptive statistics for all teachers' scores on Academic Interactions.

To analyze implementation, a criterion level of 70% was set for Academic Interactions. This level was based on previous studies of teacher effects (Stallings et al., 1979; Stallings & Mohlman, 1981). Then, scatterplots were examined to see where teachers were in relation to the criterion both before and after training. Only two teachers showed no need for change before training (one in Group II, and one in Group III).

After the training, three Group I (workshops only) teachers reached the criterion level and three showed no improvement. In Group II (peer observation), six teachers started out below the criterion level. Four reached the criterion, and two improved to only slightly below the criterion. Before training, five teachers in Group III (trainer coaching)



GROUP	I	II	III	I	II	III		I	II	III
N	7	7	6	6	7	6		6	7	6
MEDIAN	56	57	57	70	73	65		9	16	7
MEAN	55.7	59.2	58.9	65.2	73.1	62.6		10.	13.9	3.8
S.D.	7.1	14.4	11.	16.4	8.8	20.4		14.2	8.4	16.3
RANGE	36.4 66.5	42.8 87.6	48.7 79.2	37.5 79.4	61.5 89.	32.9 90.		-12.4 28.2	1.4 26.6	-17.6 22.4

Figure 1. Percent of academic interactions for groups I, II, and III.

needed to improve. Of these, only two reached the criterion level; three did not improve at all. Table 1 summarizes these results.

Table 1

Number and Percent of Teachers Implementing ACAD in Each Training Group

Implementation Category	Group I	Group II	Group III
No Improvement	3 (50%)*	0 (0%)	3 (50%)
Improved: Did not meet criterion	0 (0%)	2 (29%)	0 (0%)
Improved: Met or Exceeded criterion	3 (50%)	4 (57%)	2 (33%)
No need to change	0 (0%)	1 (14%)	1 (17%)

*The number in parenthesis refers to the percent of teachers in the group who fall into the specified category.

Based on this analysis, the peer observation training activities seemed to be more powerful than the coaching or workshops-only activities were. Because this was not a true experiment (with random assignment of subjects to treatments), it is possible that these results occurred not because of the training "treatments", but because of other differences between the groups. Group III differed from the other two groups in two possibly important ways: The participants were somewhat older and predominantly male. These factors may have accounted for the smaller improvements in Group III.

There are several plausible reasons, however, to support the superiority of the peer-observation treatment. First, secondary school teachers rarely get to see other teachers teach. Just watching a colleague teach may

have been a powerful learning experience--one that the teachers in the other groups did not receive. Several teachers mentioned picking up new ideas from the teachers they watched. Second, the peer observers were involved in the analysis and coding of teacher and student behavior. This experience may have helped them to analyze their own behavior more accurately, enabling them to make more significant changes in their own teaching.

Another benefit from the peer observation process may have been a heightened sense of trust and esteem among the group members. Being observed may have seemed slightly threatening at first, but once the teachers realized that their peer was not out to judge them, a "team spirit" began to develop. The morale in Group II seemed exceptionally high compared to that of the other two groups. It is not clear what the cause of this high espirit de corps was, but the high level of enthusiasm was unmistakable. Breaking down the pyschological walls between the teachers' classrooms through peer observation may have contributed to this group's high morale. As one teacher put it, "It made everyone feel more comfortable with each other."

The coaching group (Group III) received only feedback and suggestions from the trainer, and Group I merely filled out the forms by themselves or had an aide do it. Although these two groups received some form of feedback, they did not have the opportunity to analyze another teacher's teaching. Nor did they have the opportunity to discuss the observation results with their colleagues, as did the teachers in Group II. This difference in experiences is likely to have accounted for the differences between the groups on implementation of the training recommendations.

Relationships between Teacher Attitudes and Change

There were two sources of data on teacher attitudes: (1) ratings of the perceived ease and importance of implementing the recommended practices, and (2) teacher interviews. The analyses of the questionnaire data will be reported first.

Teacher Perceptions of Ease and Importance. Composite variables were formed by combining several of the practices that had been rated separately on the questionnaire. Only those practices thought to relate to the observed outcome variable, Academic Interactions, were included in the composite. Two variables resulted, the Ease of Providing Academic Time, and the Importance of Providing Academic Time. The reliabilities (Cronbach's alpha) of all measures (except the pre-training measure of Importance of Providing Academic Time) were greater than .80

There were no significant correlations between the pre-training ratings of ease or importance and the pre- or post-training levels of Academic Interactions. The post-training ratings of Importance of Providing Academic Time correlated significantly with Academic Interactions ($r=.68, p<.01$). Thus, teachers who rated a practice as important after training tended to go ahead and use that practice in their classrooms. But, this relationship did not hold for the pre-training data, possibly because of the low reliability of the pre-training measure. Alternatively, teachers may have been too unfamiliar with the recommended practices before receiving the training to rate them accurately.

In the analyses of other pairs of variables, the teachers' post-training rating of the importance of a given practice was a significant predictor of implementation of that practice. These findings provide support for the notion that a teacher's philosophical acceptance of a

recommended practice (or "congruence") determines whether that practice will be adopted (Doyle & Ponder, 1977; Mohlman, et al., 1982).

The notion of "cost" (or perceived difficulty/ease) (Doyle & Ponder, 1977; Mohlman, et al., 1982) as a predictor of implementation received little support in this study (r Ease vs. Academic Interactions = .20, NS). Some teachers who made great improvement on Academic Interactions felt that these were rather difficult practices to implement. Other improving teachers rated the practices as very easy to use. Thus, there did not seem to be a consistent relationship between teachers' ratings of ease or difficulty and implementation of the practices. That is, for many of the teachers, greater difficulty did not necessarily mean lower use of the practices.

The measures of difficulty used in the present research may not have captured some important aspects of Doyle and Ponder's (1977) idea of "cost" as a predictor of implementation. That idea included weighing the potential benefits received against the estimated cost. As indicated by the high post-training ratings of importance ($\bar{X}$=3.39, SD=.53), most teachers did believe that increasing academic time was beneficial to their students. Some of them felt it was so important that it was worth the effort and difficulty to implement these practices. Others implemented them at less "cost" (higher ratings of ease). This seemed to be an individual matter.

Interviews and Case Studies. To further understand the reasons teachers had for adopting (or deciding not to adopt) new practices, interviews were conducted. Matched pairs of interview tapes for five of the 13 improvers and five non-improvers (on Academic Interactions) were analyzed along with all other available data, resulting in ten case studies. The focus of the case studies was the behavior change of the teachers and their reactions to

the recommended practices and the training. Profiles of improvers and non-improvers are described next. (Also see Figure 1.)

All of the improvers (Teachers 33, 41, 43, 62, and 71) rated the practices high on Importance. They reported several things that they were doing differently in their classes and said how well the new practices were working. They made many positive comments about the training and the workshops.

Three of the improving teachers indicated that, as a result of the training, they had experienced a heightened sense of control over their teaching environments. Teacher 71 said she had found that she "really could do something" about the problems in her class. Teacher 33 said she had found a "new awareness" of her own competence. And, teacher 62 said he no longer felt powerless--he had become aware of his problems and had found ways to solve some of them. It seems that these teachers grew in their sense of self-efficacy--their confidence in their ability to deal effectively with their classroom problems. They all reported having felt dissatisfied with their teaching but not knowing what to do differently. They felt the training raised their awareness of where the problems were and gave them new ideas and techniques to solve them. After the training, they all expressed a renewed confidence in their ability to diagnose and handle problems. Teacher 71 noted that "there are so many things you think you have no control over. The workshops help you see that there are certain things you do have control over and can do something about." Again, we are reminded of Good's (1981) suggestion that effective teachers expect their students to learn and believe they are capable of helping them learn.

The greatest similarity among the non-improvers (Teachers 11, 12, 34,

72, and 74) was in their post-training ratings of Importance of Providing Academic Time. Four of the five teachers were below the sample average on their ratings of this composite variable. The fifth teacher did not complete the post-training questionnaire and had no post-training data on this variable. It appears that these teachers failed to become convinced of the importance of making these recommended changes in their classes. Teacher 74 expressed a philosophical objection to what he called the "behaviorist" philosophy of the training. Teacher 34 had her class routines set, (i.e., one "bookkeeping day" a week) and was not willing to change her way of conducting class. Teacher 11 did not believe in providing a quicker pace and making stronger academic demands of her low-ability students. Teacher 12 was unwilling to give up his routine of grading papers during the extended periods of seatwork. And teacher 72 decided it was too late in the semester to try anything new.

These reasons for lack of change all reflect a conflict between the teacher's preferred mode of teaching (a philosophical belief that his or her way of teaching was "best") and the practices recommended as effective in the training. Where there was a conflict, these teachers defended their preferred teaching style by pointing out that they 1) did not believe in the efficacy of the changes, 2) that the changes would not be good for students, or 3) that they were simply unwilling to make a change at that time. When they failed to find "congruence" (Doyle and Ponder, 1977) between their style and the recommended practices, these teachers were not able (or willing) to open themselves up to making any significant changes in their teaching. This resistance to change was apparent in the interviews; these teachers typically reported having changed only a few relatively minor things in their classes (e.g., number of activities, seating plan, or use of praise).

Two of the non-improving teachers expressed low expectations of their students' abilities to succeed in their classes. Teacher 11 felt that, because some of her students were in special education programs, they were unable to follow directions or engage in "typical" academic activities. Teacher 74 indicated that the students who were still in his class at the end of the semester were "the hopeless cases." For both teachers, these lowered expectations for success may have accounted for their decisions not to try alternative teaching strategies. In Good's (1981) review of the research on teacher expectations, he indicated that effective teachers expect their students to learn and do not give up until they do. It appeared that these teachers had "given up." They may have given up, not only on their students, but also on their own ability to help students learn. Thus, a low self-expectation may have been related to these teachers' lack of improvement.

Differences Between Improvers and Non-Improvers. This case-by-case analysis of improving and non-improving teachers has highlighted several differences between the two groups. These differences lie in the areas of teacher attitudes and behavior.

The improving teachers shared a positive, accepting attitude towards the training. They rated the practices for increasing academic time as quite important. And, they came to believe in and experience a renewed confidence in their ability to effect desirable changes in their classes.

In contrast, the non-improving teachers made fewer positive comments about the training. They failed to see the importance of using the practices for increasing academic time. And, most of them seemed to have low academic expectations of their students and themselves as teachers.

Based on these observations, it appears that, as predicted, the non-

improvers lacked "philosophical acceptance" of the recommended practices. When they found a discrepancy between what they were doing and the recommended practices, they tended to defend or justify their preferred style rather than risk attempting change. The improvers were able to admit that there were problems and accept a new way of looking at their teaching. They found a philosophical acceptance for the recommended practices and went on to make changes in their teaching.

The improving teachers tried out several new practices in their classes and adapted them as they saw fit (e.g., one teacher preferred to use the incentive system with individuals rather than with the group because "it worked better"). This process reminds us of Berman and McLaughlin's (1976) concept of "mutual adaptation;" techniques are changed as they are used in new situations. The teachers made detailed comments about the recommended techniques, indicating that they had tried them out and had thought about their effectiveness. In contrast, the non-improvers tended to list only a few things they had tried, and gave very few details about how they had worked.

Implications for Research and Practice

The findings and conclusions from the present research are useful for guiding future research and practice. These implications are presented next.

Implications for Research

This study and others have demonstrated that teachers can make great improvements in classroom management and organization skills that increase the quantity of academic time. But what about the quality of that academic time? Are students succeeding, solving problems, thinking productively? Two of the teachers in this study who had improved greatly on Academic Interactions did not seem to be providing high quality instruction.

The observer logs indicated that these teachers were vague in their explanations and, at times, behaved inappropriately with students. The implication here is that raising academic time is not enough to assure excellent teaching. It is a necessary, but probably insufficient, condition for high quality instruction.

Measurement of the subtler, harder-to-observe aspects of teaching is problematic. Inter-rater reliability is difficult to attain on such measures. And, variations of a given strategy are often found. Some variations are effective for some teachers and students while others are not. Thus, noting the mere presence or absence of a practice may not be adequate to determine the effectiveness of that practice. Researchers of teaching acknowledge the essential artistry in teaching (e.g., Gage, 1978). But measuring such subtleties is a difficult and challenging task. If we are to move from recommendations regarding quantity of academic time to the quality of that time, reliable, valid measurement techniques must be found for such aspects of good teaching.

The present research has also highlighted the relationship between a teacher's philosophical acceptance of a practice and his or her use of that practice in the classroom. This relationship was found for post-training ratings, but not for pre-training ratings of importance. And the training had an effect on such ratings; the level of importance assigned to the practices by the teachers increased. If one goal of inservice training is to tailor training activities to teachers' entering characteristics (e.g., attitudes toward recommended practices), measures will be needed that accurately assess those characteristics before training. And, well-controlled experiments must be designed to establish such attitude-by-training interactions.

Another area requiring further research is the efficacy of coaching

provided by a trainer. Although this training activity was effective with two teachers there was no evidence to suggest that it was more effective than the workshops-only training. One prominent statement on inservice education (Joyce & Showers, 1982) strongly recommends on-site coaching of the type tested here. Since such coaching is time-consuming and expensive, more needs to be known about its value under various conditions.

Also, peer observation needs to be tried with more resistant teachers to see how powerful it is with such teachers. Its effectiveness with the teachers in this study was impressive. Since this is a relatively low-cost intervention, more needs to be known about its usefulness with various types of teachers, in varying contexts, and for different kinds of outcomes.

Next, there is always the problem of generalizing the findings from the present research to other settings, teachers, and training goals. It must be remembered that, in the past, the Effective-Use-of-Time workshops have been effective, even without the extra training activities. One cannot guarantee that peer observation would be as powerful in the context of some other inservice training model (e.g., a large-group one-day workshop). In the workshops tested here, teachers received individual profiles based on three days of observation. The profiles provided detailed information on teaching behavior and recommendations for change. These profiles may have been effective in producing teaching change, but they are expensive to generate. A provocative research question is, What would be the effect of the workshops without the profiles but with peer observations? This less expensive training model should be tested.

Finally, the interviews and case studies brought to light some intriguing aspects of teacher change. The notion that teachers' self-efficacy predicts implementation and change should be examined further. It appears

that this may be a critical entering characteristic to consider. It may also be important to examine the influence of the training on teachers' sense of efficacy, or control over their environment. The data presented here suggest that such teacher characteristics may influence teachers' ability to make changes in their classes.

Implications for Practice

The present study has provided several insights into teacher attitudes, training activities, and teacher change. First, it appears that an important goal of inservice training should be to develop in teachers a philosophical acceptance of the most effective teaching practices. This goal can be achieved through small-group discussions of the philosophical pros and cons of the practices, experimentation with the practices between the workshop meetings, reports on the effects of the practices tried out, and observation of the practices in other teachers' classrooms. Where teachers understand, believe in, and have experienced the effectiveness of the recommended practices, they are more likely to use them.

Second, the provision of objective, non-threatening peer observation activities seems to "boost" the effectiveness of normal workshop-based inservice training. The objectivity of the observations was assured through the use of seating charts for marking student or teacher behavior. The lack of threat was a result of the atmosphere in which the training was conducted. For example, the only training goal was teacher growth in those areas the teachers chose for themselves. And the principals of the participants' schools assured the teachers that the peer observation information was for them only, that it was purely confidential, and that it was unrelated to evaluation. Also, the workshop leaders treated the teachers as professional colleagues involved in problem-solving and growth

activities. Thus, peer observation is likely to be beneficial when these conditions are met.

Third, it has been shown that the Effective-Use-of-Time workshops produce significant teacher improvement. The power of the workshops may be accounted for by three factors: scheduling, atmosphere, and format. The five workshops were spaced over two months, so the teachers had time to digest the content in small chunks and to try things out a few at a time. We know that change is often a gradual process (Berman & McLaughlin, 1976). This schedule allowed teachers to experiment with and reflect on their teaching behavior. But, what is perhaps more important, they were able to do this experimenting and reflecting in a supportive, trusting atmosphere. Several teachers praised the "personal", "non-evaluative", "professional" atmosphere provided in the workshops.

The crux of the training format was the small-group problem-solving process. Each of the six or seven teachers had ample opportunity to discuss what he or she had tried, how it had worked, and special concerns or problems. Then the group set about finding or creating solutions. They shared their favorite techniques, games, and activities. The role of the workshop leader was to explain the topic, describe what research had shown to be effective, and keep the group focussed on seeking solutions to their problems. Training programs that are spaced over time, that provide a supportive and non-threatening atmosphere, and that use a small-group problem-solving format seem to foster teacher growth and improvement.

Fourth in this list of implications for practice is the generalizability of these findings to the design of future inservice or staff development programs. It must be kept in mind that the teachers in the present study were volunteers. The results of this research might not have been obtained

with a group of non-volunteer teachers. The proportion of resistant teachers (such as Teachers 12 and 74) may be higher in non-volunteer groups. Also, non-volunteers may balk at the notion of peer observation, especially in district-run programs where levels of trust between teachers and trainers may be low.

This raises the issue of the difference between university- or research-laboratory-run staff development and district- or school-based staff development. Generally, the former types of programs are perceived as neutral. Teachers trust the confidentiality of the situation and know they are not being evaluated. They volunteer for a research project, not a remediation project. District-run programs, in contrast, may have emotional or political overtones. Teachers are often required or strongly "nudged" to participate. They often feel that the purpose of the program is to remedy poor teaching. In such settings, teachers often fear for their job security or professional reputation.

For these reasons, the transporting of research findings from universities or laboratories directly to the districts may be problematic. The issues of readiness, commitment, ownership, trust, and politics are typically not as dominant in the research settings as they are in school districts (see, for example, Wood, Thompson, & Russell, 1981). This reality must be kept in mind when translating research into practice.

Finally, we need to stay focussed on the ultimate goal of inservice training--to improve the quality of teaching and learning. As noted above, improvement in quantity of academic learning time does not necessarily insure improvement in the quality of that time. It appears that relatively high success can be attained on the training of classroom management and

organizing behaviors. But the development of the more complex cognitive aspects of teaching such as designing lessons to assure mastery of an objective, teaching critical thinking skills, structuring information for students, and dealing with differing ability levels have been more resistant to change (see Evertson, et al., 1982; Mohlman, et al., 1982).

The findings of the present study suggest that it is unlikely that change will occur in any of these areas unless teachers become convinced of the importance and efficacy of the recommended practices. But, it was also hypothesized that teachers' perceptions of the difficulty of a practice would reflect the complexity of it. Thus, a rather complex teaching behavior such as grouping for different ability levels would be rated as difficult, and thus, would be implemented less. Although many teachers did rate this practice as more difficult, many also found it easy. And, the ease/difficulty construct was only weakly related to implementation of the rated practices.

It may be that such complex practices are more difficult to train, not because teachers think they are harder, but because such practices are much more cognitively sophisticated. These practices may require higher level mental processes for their use. Perhaps the work of Oja (1980) on teachers' conceptual level can guide further inquiry into teachers' use of such complex, higher-level teaching skills. There has been much progress on training teachers to improve classroom management; the challenge of the future is to help teachers improve some of the more conceptually difficult aspects of teaching.

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